Semantic Mapping: In Communicative Language Teaching

By Mohammed Abdullah Zaid

Semantic mapping has been shown to be a beneficial learning/teaching technique for native speakers of English at all grade levels in regular and remedial classrooms as well as for those who are learning-disabled. Students who use semantic mapping manifest considerable improvement in reading comprehension, written expression, and vocabulary development.

Its value for English as a Foreign Language has also been acknowledged. Studies by Crow and Quigley (1985) and Brown and Perry (1991) found that semantic processing was an effective vocabulary learning strategy. And a series of studies, principally by Carrell, examined how schema theory and semantic mapping can improve the reading skills of ESL students.

However, the use of semantic mapping as a classroom technique in Communicative Language Teaching (CLT) has been relatively unexplored. Roleplaying, language games, the use of pictures and authentic materials, and information-gap and problem-solving tasks are the principal activities of the CLT classroom (Larsen-Freeman, 1986; Richards and Rodgers, 1986). What I will do in this paper is to suggest some areas of correlation between what a semantic mapping activity does and the principles and objectives of CLT. This easy fit between a particular technique and a general approach suggests the inclusion of semantic mapping activities in the technical repertoire of CLT.

What is Semantic Mapping?

Formal definitions can be given, such as: Semantic mapping is "a visual representation of knowledge, a picture of conceptual relationship" (Antonacci, 1991:174); "a graphic arrangement showing the major ideas and relationships in text or among word meanings" (Sinatra, Stahl-Gemake, and Berg, 1984: 22), or "a categorical structuring of information in graphic form" (Johnson, Pittelman, and Heimlich, 1986:779). However, a personal classroom illustration is probably the best way to gain an understanding of semantic mapping. I was faced with a problem which many beginning-level EFL teachers of reading must face: How to get students to focus not just on the individual details but also on the structure of a text. I felt that semantic mapping might help in the conceptualization of paragraph and short-essay structure. Thus the decision to implement semantic mapping arose out of a learning problem my students were having.

Implementing a Semantic Mapping Reading Activity

I told the students about the problem I had noticed in their reading practices and explained that the following activity might help them. Thus they knew the rationale for the implementation of the activity. Using white chalk, I drew a large oval on the chalkboard and wrote inside it, "Muslim Carpets," which was the topic of the next reading-focused assignment. Then I asked them to tell me what they knew about the topic. I recorded their responses in red chalk at the side of the chalkboard, listing them in the order they were given.

When no further suggestions were forthcoming, I asked the students if they saw any ways to group their ideas. "Color" was suggested first. Using red chalk, I drew a circle away from the oval and wrote inside of it the word "Colors," and connected it with a straight line to the oval labeled "Muslim Carpets." "What colors?" I asked. Their responses were placed in squared or rectangular shapes (depending on the number of words) away from the "Colors" circle and connected to it by spoke-like lines.

The suggestion, "Red and blue colors often used," gave me the opportunity to introduce the word "Popular," which in this context was new to most students. When the students seemed to understand the new use of this word, I erased "Often used" and wrote in "Popular." "Large" and "Small" generated the category "Sizes," but the attempt to categorize "Flowers" and "No animals," was unsuccessful. This made me realize that "Designs" was a new vocabulary word for the class.

Immediate values of the activity were becoming apparent to both the students and me. For the students, the map was providing a graphic conceptualization of their randomly given ideas. This attempt at structuring individual details was being supplemented by the introduction of new vocabulary words, which the students saw-without being told-were important: Their need to know arose from the task and was not imposed on it. For me, the discussion was giving an insight into how much *prior* knowledge the class had about the topic "Muslim Carpets." Both the students and I realized that input was being controlled by the students, although the shaping of the map was a cooperative effort by both the students and the teacher.

After the student-suggested ideas had been categorized, the students copied the map (Figure 1 below). Then each was given a two page copy of a reading on "Muslim Carpets" and were told that as they read, they could add new ideas that they had learned about carpets from the reading, using appropriate subordinating circles or squares/rectangles. As they read, I passed among them, noting the additions and other changes they made to their copies of the pre-reading semantic map. Some added new second-level circles, such as countries of the Muslim world which are famous for carpet-making.

Tertiary-level material was typically added or amended. Under the category "designs," "flowers" became a subcategory of "plants," and "geometric patterns" was incorporated. Since a major paragraph of the reading dealt with the quality of Muslim carpets, this idea became a new secondary-level node, with clarifying tertiary and detailed fourth-level subdivisions.

After students had finished "personalizing" the pre-reading map, they were given the opportunity to offer the new information for supplementing the chalkboard version of the map. I recorded the new information in blue chalk. As I had expected, because of the differences among students'

experiences and interpretations of what was important in the reading, there were some disagreements about the final shape the map should take. This part of the activity is the most valuable because of the interaction which it produces among students. The shape of the map is not as important as the discussion which surrounds its shaping. Changes, rearrangements, eliminations, and additions produced the post-reading semantic map of the topic shown above.

At this point, I asked the students if they had found the activity valuable. The following paraphrases their answers: Some expressed pleasure that by using their prior knowledge they had been able to anticipate three of the five major points which the writer of the reading had used. Some said that the different colored chalk had allowed them to see the relationship among the sources-prior knowledge, categorization, and the reading. Some indicated that the shapes allowed them to understand the structuring of the information of the reading. Some liked the discussion ("arguing" was jokingly used) that the communal building of both versions of the map had brought about.

Since the activity was designed to improve the students' ability to recognize the structure of an essay, I collected the copies of the reading on "Muslim Carpets" which I had distributed, but I let the students retain their maps. "Now, using your copy of the drawing," I announced, "for homework do a short essay about Muslim carpet-making, using each of these circles (I pointed to the five second-level circles) as a separate paragraph."

Procedure of a Semantic Mapping Activity

From the above illustration, it can be seen that there are three places in a lesson where semantic mapping may be used: As a pre-assignment strategy to activate students' prior knowledge or to help the teacher in assessing the students' readiness to do the assignment; as a strategy to allow students to record what they are learning during the assignment; and as a post-assignment strategy to allow them to integrate or synthesize what they have studied. In totality, a semantic mapping activity assists students in viewing learning from an organized versus a fragmented perspective.

The following procedure exemplifies all three stages of the use of semantic mapping in the classroom, broken down into five phases:

1. Introducing the topic. The teacher studies a unit in the syllabus and determines that semantic mapping can be useful. The teacher announces the topic of the unit by drawing a large oval on the chalkboard-an overhead projector can also be used-writing the topic inside of it. Some teachers display a picture relating to the topic to stimulate students' thoughts and get the brainstorming procedure going (Heimlich and Pittelman, 1986).

2. Brainstorming. The teacher asks the students to think of ideas that might be related to this topic. This brainstorming phase allows students to make use of their prior knowledge or experiences. Brainstorming is an application of the schema theory, which attempts to explain how people integrate new information with their existing framework of knowledge. The theory

posits that information is stored in the brain in networks, called schemata. When a person encounters new information, s/he tends to link this new information to appropriate schemata (Alvermann and Swafford, 1989; Kalgren, 1992).

Thus, prior knowledge can be used as a stepping block to new knowledge. The brainstorming phase of semantic mapping gives the teacher insight into the schemata of each of her/his students, thus revealing interests, level of readiness, gaps, misconceptions, and errors (Pearson and Johnson, 1978). Typically in brainstorming, ideas from one student will trigger ideas from other students "in a chain reaction thought process" (Heimlich and Pittelman, 1986:34).

Some teachers immediately record the ideas which their students give around the topic oval; however, what I have found best is to list them to the side of the chalkboard, transferring them to the pre-assignment semantic map during the next phase. A different color of chalk is used from that of the central oval.

As Olson and Gee (1991) note, the use of different colored chalk or markers at each step of semantic mapping tends to promote student conceptualization and structuring of the topic and helps them recognize the different sources of information. In the brainstorming phase, it is crucial that all responses are accepted as long as they relate to the topic.

3. Categorization. The teacher encourages the students to see relationships among their suggestions. As "category clusters" (Antonacci, 1991:174) are formed, the teacher uses the same colored chalk employed in brainstorming, and records them in nodes connected by spoke-like straight lines leading from the central node. Usually the nodes at this secondary level have a different shape from that at the primary level. As Figure 2 shows, I use a central oval, then circles for categories, then squares or rectangles for exemplifying details of the third- and fourth-levels. (The difficulty that the students had drawing perfectly shaped squares compelled me to let them use any box-shaped configuration for third-and fourth-level details). I have found that different shapes and different colors allow these aspects of the "visual/graphic" to reinforce the "verbal/graphemic." When students have difficulty identifying categories, the teacher can use Wh-questions (Who, What, When, Where, How) to prompt them to think of categories (Englert and Mariage, 1991).

The map is modified as the class begins to organize and integrate the individual suggestions. This "pulling together" phase allows students, as they begin to relate ideas, to see the connections between their suggestions. During categorization, the teacher can also introduce vocabulary words which students might need during the next phase of the activity. Once the pre-assignment semantic map (representing what the students know before doing the assignment) has been drawn on the chalkboard, the teacher should have the students make their own copies. In this phase, the students gain experience in practicing some valuable cognitive skills, particularly categorization and exemplifying, but also (depending on the topic) comparing and contrasting, cause and effect, inference making, and forming judgments.

4. Personalizing the map. After each student has made a copy of the pre-assignment map, the class is provided with some material on the topic. This material is typically a reading passage since semantic mapping is designed to show the relationship between the verbal and the visual.

The reading will almost certainly contain more information about the topic than the students had listed on the pre-assignment map. As they read, students are to decide what to add to or eliminate from the pre-assignment map. New information is thereby integrated with prior knowledge.

5. *Post-assignment synthesis.* The last part of the class period is used to record the students' suggestions from their personal maps on the pre- assignment, chalkboard version of the map. Discussion will probably center on the amount of information acquired from the reading and how it has modified the original map. The teacher should state that all personal versions have a validity and that even when a suggestion for modifying the chalkboard version of the map is rejected by the class that does not mean the suggestion is without merit. The class as a whole decides the final shape which the map will take. The new version, with its different colors and shapes highlights what they knew before they did the assignment from what they now know. It serves as a visual representation of the knowledge they have gained from the assignment.

Finally, the map-either in its final chalkboard form or in the personalized version made by each student-can serve as a springboard for other language activities. The map can be an outline for the writing of a short essay on the topic, or one segment of the map can be used in the writing of a paragraph. Some students may want to enlarge the map further by doing research on the topic in the library. If the semantic mapping activity has been valuable for the students, they themselves will want to make the decision of what they wish to initiate as a follow-up.

Semantic Mapping as a CLT Activity

From the classroom illustration and the discussion of the procedure followed, it can be seen that semantic mapping incorporates many of the aspects of Communicative Language Teaching which have been found to benefit students in learning a second language:

1. Semantic mapping is *interactive* because in drafting the map, students work with each other both before and after the targeted language topic. Its creation entails total student involvement; the students are active participants throughout the development of the map. Their brainstorming allows the map to take its first shape; and their output during and following the assignment determines the final shape the map will have.
2. Semantic mapping allows for sequential *negotiation.* First there is interpersonal negotiation through students' suggestions and categorization. Then there is reflective intrapersonal negotiation while each student is reading about the topic-in essence shaping her/his own personal semantic map. Finally there is a return to interpersonal negotiation as the class modifies the pre-assignment and personalized maps into the post- assignment map. The interactive process of student negotiation of meaning has merged the interpersonal or social aspect of language development (Savignon, 1983) with the intrapersonal, reflective aspect of language learning (Tarvin and Al-Arishi, 1991).
3. It is an *information-gap activity* since students must fill in gaps in the map and in their personal schemata of the topic as the map takes shape.

4. It is a *predictive activity* because in the pre-reading phase, the students' discussion basically anticipates what will appear in the reading material. Being allowed to make brainstorming and categorizing predictions about the reading whets the students' appetite to read. They want to know if their suggestions anticipated those of the writer of the reading passage.
5. It is *student centered* because the semantic map makes use of the students' prior knowledge and because students control the input at each stage of the map's building.
6. It is *teacher-friendly* because it allows the EFL teacher unobtrusively to pre-assess the students' readiness to do an assignment, take immediate steps (as in vocabulary introduction) to enhance their preparation, and to post-evaluate how well the students integrated or synthesized what they had studied.
7. And finally, it is an *integrative activity* , since it allows students to connect previous knowledge with new knowledge, thereby expanding their reservoir of knowledge through that interrelationship.

Of course, as with all techniques, semantic mapping should not be overused (Heimlich and Pittelman 1986), and I would also caution CLT teachers not to have their students make overly detailed and multileveled semantic maps that result in only a confusing visual display. Hanf's (1971) suggestion (intended for native-speakers) that not more than six or seven secondary-level categories be used in semantic mapping probably should be reduced to four or five categories for beginning EFL students.

In this paper I have tried to show how semantic mapping can become an effective technique in the CLT classroom. A map, like a picture, can be worth a thousand words. It can stimulate your EFL students to talk, and encourage them to listen. To complete the circle-if your students listen-they can in turn make the map talk even more.

If this article has been persuasive, on a separate piece of paper draw an oval. Write in it "Teaching with semantic maps." Then draw some radiating spokes leading to circles in which you can list the values you have identified in using semantic mapping in Communicative Language Teaching.

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References

- Alvermann, D. E. and J. Swafford. 1989. Do content area strategies have a research base? Journal of Reading, 32, pp. 388-94.
- Antonacci, P. A. 1991. Students search for meaning in the text through semantic mapping. Social Education, 55, pp. 174-5, 194.
- Brown, T. S. and F. L. Perry, Jr. 1991. A comparison of three learning strategies for ESL vocabulary acquisition. TESOL Quarterly, 25, pp. 655-70.

- Carrell, P. L. 1985. Facilitating ESL reading by teaching text structure. TESOL Quarterly, 19, pp. 727-52.
- ---. 1987. Content and formal schemata in ESL reading. TESOL Quarterly, 21, pp. 461-81.
- ---. 1989. SLA and classroom instruction: Reading. Annual Review of Applied Linguistics, 9, pp. 233-42.
- Carrell, P. L. and J. Eisterhold. 1983. Schema theory and ESL reading pedagogy. TESOL Quarterly, 17, pp. 553-73.
- Carrell, P. L., B. Pharis, and J. Liberto. 1989. Metacognitive strategy training for ESL reading. TESOL Quarterly, 23, pp. 647-76.
- Clayton, V. and V. Nordstrom. 1987. Semantic mapping: A selective annotated bibliography. Education Libraries, 12, pp. 33-43.
- Crow, J. T. and J. R. Quigley. 1985. A semantic field approach to passive vocabulary acquisition for reading comprehension. TESOL Quarterly, 19, pp. 497-513.
- Englert, C. S. and T. V. Mariage. 1991. Making students partners in the comprehension process: Organizing the reading (POSSE). Learning Disability Quarterly, 14, pp. 123-137.
- Hanf, M. P. 1971. Mapping: A technique for translating reading into thinking. Journal of Reading, 14, pp. 225-230, 270.
- Heimlich, J. E. and S. V. Pittelman. 1986. Semantic mapping. Newark, Del.: International Reading Association.
- Kalgren, A. 1992. Semantic maps: The road to better writing. Perspectives, 10, pp. 16-18. A19
- Johnson, D. D., S. D. Pittelman, and J. E. Heimlich. 1986. Semantic mapping. The Reading Teacher, 39, pp. 778-82.
- Larsen-Freeman, D. 1986. Techniques and principles in language teaching. Oxford: Oxford University Press.
- Olson, M. W. and T. C. Gee. 1991. Content reading instruction in the primary grades: Perceptions and strategies. The Reading Teacher, 45, pp. 298-307.
- Pearson, P. D. and D. D. Johnson. 1978. Teaching reading comprehension. New York: Holt, Rinehart, and Winston.
- Peresich, M. L., J. D. Meadows, and R. Sinatra. Content area cognitive mapping for reading and writing proficiency. Journal of Reading, 33, pp. 24-32.
- Pittelman, S. D., K. M. Levin, and D. D. Johnson. 1985. An investigation of two instructional settings in the use of semantic mapping with poor readers. Madison, Wisc.: Wisconsin Center for Education Research, University of Wisconsin.
- Richards, J. C. and T. S. Rodgers. 1986. Approaches and methods in language teaching: A description and analysis. Cambridge: Cambridge University Press.
- Savignon, S. J. 1983. Communicative competence: Theory and classroom practice. Reading, Mass.: AddisonWesley.
- Sinatra. R. C., J. Stahl-Gemakel, and D. N. Berg. 1984. Improving reading comprehension of disabled readers through semantic mapping. The Reading Teacher, 33, pp. 22-29.
- Tarvin, W. L. and A. Y. Al-Arishi. 1991. Rethinking communicative language teaching: Reflection and the EFL classroom. TESOL Quarterly, 25, pp. 9-27.

- **Figure 1**
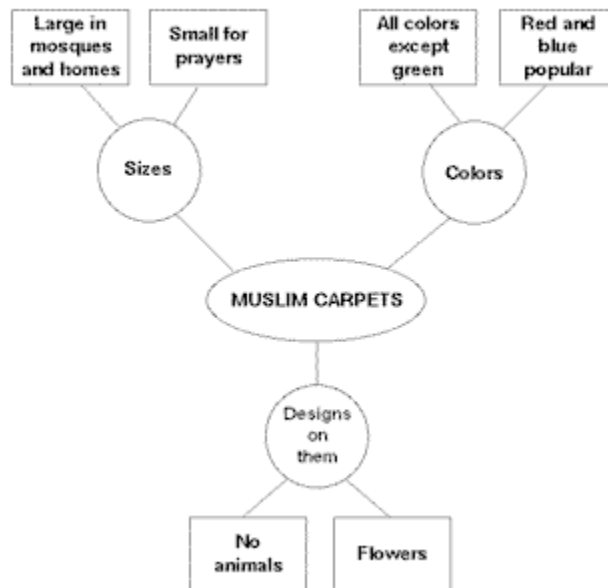
- **Pre-reading (Brainstorming) suggestions by students**
- "some small"
  "some large"
  "red and blue colors often used"
  "all colors except green"
  "no animals on them"
  "small ones used for prayers"
  "big ones used in mosques and homes"
  "flowers on them"

Figure 2